

CLAIMS

Having thus described our invention, what we claim as new, and desire to secure by Letter Patent is:

- 1 1. A liquid crystal device comprising :
2 a pair of substrates;
3 electrodes formed on each one side of said substrates;
4 alignment films for homogeneous alignment, formed on said electrodes and facing each
5 other by a uniform space; and
6 a liquid crystal material including liquid crystal molecules each having a negative
7 dielectric anisotropy, said liquid crystal material filled in a gap formed between the
8 alignment films.
- 1 2. The liquid crystal device according to Claim 1, wherein polarizers are disposed on
2 each of the other side of said substrates and longer axes of said liquid crystal molecules
3 form about 45 degrees to polarization axes of the polarizers.
- 1 3. The liquid crystal device according to Claim 1, wherein said liquid crystal molecules
2 are vertically oriented with respect to said substrates.
- 1 4. The liquid crystal device according to Claim 3, wherein said alignment films are
2 polyimide films for homogeneous alignment.
- 1 5. A liquid crystal device comprising :
2 a pair of substrates;
3 electrodes formed on each one side of said substrates;
4 alignment films for homogeneous alignment, formed on said electrodes and facing each
5 other by a uniform space; and

6 a liquid crystal material including liquid crystal molecules each having a negative
7 dielectric anisotropy, said liquid crystal material filled in a gap formed between the
8 alignment films,
9 wherein a domain of said liquid crystal device is divided.

1 6. The liquid crystal device according to Claim 5, wherein polarizers are disposed on
2 each of the other side of said substrates and longer axes of said liquid crystal molecules
3 form about 45 degrees to polarization axes of the polarizers.

1 7. The liquid crystal device according to Claim 5, wherein said liquid crystal molecules
2 are vertically oriented with respect to said substrates.

1 8. The liquid crystal device according to Claim 7, wherein said alignment films are
2 polyimide films for homogeneous alignment.

1 9. A method for fabricating a liquid crystal device including the steps of :
2 forming desired electrodes on each one side of substrates;
3 forming alignment films for homogeneous alignment, formed on said electrodes and
4 facing each other by a uniform space;
5 filling a liquid crystal material including liquid crystal molecules each having a negative
6 dielectric anisotropy in a gap formed between the alignment films; and exposing the
7 liquid crystal molecules filled between said substrates to light.

1 10. The method for fabricating a liquid crystal device according to Claim 9, wherein said
2 step of exposing liquid crystal molecules to light is used for controlling liquid crystal
3 molecules so that said liquid molecules may be vertically oriented with respect to said
4 substrates.

1 11. The method for fabricating a liquid crystal device according to Claim 9, wherein said
2 step of exposing liquid crystal molecules to light is used for illuminating said liquid
3 crystal material from either or both sides of said substrates.

1 12. The method for fabricating a liquid crystal device according to Claim 9, further
2 including step of cutting light with wavelengths of 400 nm or less and/or 600 nm or
3 more before said step of exposing liquid crystal molecules to light.

1 13. The method for fabricating a liquid crystal device according to Claim 12, wherein
2 said light used for exposure includes a wavelength in a range from 400 nm to 450 nm.

1 14. A method for fabricating a liquid crystal device including the steps of :
2 forming desired electrodes on each one side of substrates;
3 forming alignment films for homogeneous alignment, formed on said electrodes and
4 facing each other by a uniform space;
5 filling a liquid crystal material including liquid crystal molecules each having a negative
6 dielectric anisotropy in a gap formed between the alignment films; and exposing the
7 liquid crystal molecules filled between said substrates to light by disposing masks in a
8 prescribed region of either or both sides of each of the substrates.

1 15. The method for fabricating a liquid crystal device according to Claim 14, wherein
2 said step of exposing liquid crystal molecules to light is used for controlling liquid crystal
3 molecules so that said liquid crystal molecules may be vertically oriented with respect to
4 said substrates.

1 16. The method for fabricating a liquid crystal device according
2 to Claim 14, wherein said step of exposing liquid crystal molecules to light is used for
3 illuminating said liquid crystal material from either or both sides of said substrates.

1 17. The method for fabricating a liquid crystal device according to Claim 14, further
2 including a step of cutting light with wavelengths of 400 nm or less and/or 600 nm or
3 more before said step of exposing liquid crystal molecules to light.

1 18. The method for fabricating a liquid crystal device according to Claim 17, wherein
2 said light used for exposure includes a wavelength in a range from 400 nm to 450 nm.

1 19. The method for fabricating a liquid crystal device according to Claim 14, wherein
2 said masks include half-tone masks.

1 20. A fabricating apparatus for a liquid crystal device comprising:
2 a pair of substrates,
3 electrodes formed on each one side of said substrates;
4 alignment films for homogeneous alignment, formed on said electrodes and facing each
5 other by a uniform space; and
6 a liquid crystal material including liquid crystal molecules each having a negative
7 dielectric anisotropy, said liquid crystal material filled in a gap formed between the
8 alignment films,
9 wherein the fabricating apparatus includes exposing means for exposing said liquid
10 crystal material to light from either or both sides of said substrates.

1 21. The fabricating apparatus for a liquid crystal device according to Claim 20, wherein
2 said exposing means emits light having a wavelength in a range from about 400 nm to
3 450 nm.

1 22. The fabricating apparatus for a liquid crystal device according to Claim 20, wherein
2 said exposing means is equipped with a filter for cutting wavelengths to 400 nm or less
3 and/or 600 nm or more.

1 23. A fabricating apparatus for a liquid crystal device comprising:
2 a pair of substrates,
3 electrodes formed on each one side of said substrates;
4 alignment films for homogeneous alignment, formed on said electrodes and facing each
5 other by a uniform space; and
6 a liquid crystal material including liquid crystal molecules each having a negative
7 dielectric anisotropy, said liquid crystal material filled in a gap formed between the
8 alignment films,
9 wherein the fabricating apparatus includes means for disposing masks in a prescribed
10 region of either or both sides of said substrates and exposing means for exposing said
11 liquid crystal material to light from either or both sides of the substrates.

1 24. The fabricating apparatus for a liquid crystal device according to Claim 23, wherein
2 said exposing means emits light having a wavelength in a range from 400 to 450 nm.

1 25. The fabricating apparatus for a liquid crystal device according to Claim 23, wherein
2 said exposing means is equipped with a filter for cutting wavelengths of 400 nm or less
3 and/or 600 nm or more.

1 26. The fabricating apparatus for a liquid crystal device according to Claim 23, wherein
2 said masks include half-tone masks.